

EXHIBIT 22

UNITED STATES INTERNATIONAL TRADE COMMISSION

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In the Matter of

Investigation No.

CERTAIN LIGHT-BASED PHYSIOLOGICAL

337-TA-1276

MEASUREMENT DEVICES AND COMPONENTS

THEREOF

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OPEN SESSIONS

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1 UNITED STATES INTERNATIONAL TRADE COMMISSION

2 Washington, D.C.

3 Before the Honorable Monica Bhattacharyya

4 Administrative Law Judge

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9 CERTAIN LIGHT-BASED PHYSIOLOGICAL 337-TA-1276

10 MEASUREMENT DEVICES AND COMPONENTS

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15 EVIDENTIARY HEARING

16 Thursday, June 9, 2022

17 Volume IV

18

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20 The parties met via remote videoconferencing
21 pursuant to notice of the Administrative Law Judge at 9:30
22 a.m. Eastern.

23

24

25 Reported by: Linda S. Kinkade RDR CRR RMR RPR CSR

1 exact date.

2 Q. And when did you personally start work on what
3 became the Series 0?

4 A. It would have been fall of 2012.

5 Q. What were your responsibilities with respect to
6 the Series 0?

7 A. I was in charge of the team that was tasked with
8 developing multiple optical sensors for the Apple Watch.
9 There were three.

10 One was the optical heart rate monitor, the
11 second was a optical, what we called wrist detection sensor,
12 which could determine when you removed the watch from your
13 wrist for purposes of data security, it would lock the watch
14 up if you removed it from your wrist, and I also worked on
15 the ambient light sensor for the Apple Watch.

16 Q. Let's focus, if we could, on the heart rate
17 sensor.

18 What were some of the engineering challenges that
19 you and your colleagues confronted in designing the heart
20 rate sensor for the Series 0?

21 A. Well, first of all, making a heart rate
22 measurement at the wrist was particularly challenging
23 because the wrist doesn't have a lot of blood volume there
24 to measure optically. But even on top of that, which was
25 already a daunting problem, we had to fit into a very small

1 product. As I mentioned, I've worked on many products, and
2 the watch was the smallest of all of them. So we did not
3 have much space to fit the sensor itself.

4 The battery was small, so we had to make sure
5 that the heart rate worked with as low power as possible.
6 And we also had to work, because it was a mobile device, we
7 had to work in all these use cases throughout the day for
8 people, people are different size, different shapes, they
9 choose different bands, they choose different tightness of
10 bands, and we needed to make sure that the heart rate
11 monitor worked well in all the use cases that our customers
12 would expect.

13 Q. Mr. Land, what was the engineering impact, if
14 any, of the industrial design of the Apple Watch?

15 A. Yeah. Industrial design is an important part of
16 the Apple product. It defines, not only the outside shape
17 of the product, but the look and the feel, and the design
18 language, the aesthetics.

19 So we not only had to make a product that checked
20 all the boxes of low power, fit in this tiny form factor,
21 worked well across all the use cases, but we also had to
22 make sure that it was beautiful and compatible with the look
23 and feel of what the ID studio was going for for the product
24 vision.

25 Q. Now you succeeded in meeting these challenges.

1 Do I have that right?

2 A. Yes.

3 Q. And what were some of the components in the heart
4 rate sensor for the Series 0 watch?

5 A. We had an LED package, which had a couple of
6 different LED wavelengths in it, and we had packaged
7 photodiodes so LEDs emitted light, the photodiodes collected
8 the light.

9 We also had the apertures that the LEDs and
10 photodiodes were lined up to shine light through, and we
11 also had optical barriers to provide isolation internally.
12 And we built a custom electrical chipset that drove the LEDs
13 and processed signals from the photodiodes.

14 Q. Mr. Land, what was the shape of the back crystal
15 in the Series 0 watch?

16 A. It was dome-shaped.

17 Q. Why was it dome-shaped?

18 A. My understanding is the primary reason that it
19 was dome-shaped was to provide a little extra space to fit
20 the coils that were part of the wireless charging system.
21 The Apple Watch charges wirelessly through a dock that has a
22 complementary shape, and the dome-shape, when in combination
23 with the charging cradle, in addition to providing
24 additional space for the charging coils, it also provides a
25 self-centering mechanism so that, when you place it on the

1 cradle, it aligns itself well to the other -- the charger
2 for efficient wireless charging.

3 MR. MUELLER: Your Honor, if we could go on the
4 Apple confidential record.

5 (Whereupon, the hearing proceeded in confidential
6 session.)

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3 JUDGE BHATTACHARYYA: Moving to the public
4 record.

5 BY MR. MUELLER:

6 Q. Now, sir, the health sensing hardware developed
7 by your team, there are, of course, other components beyond
8 that hardware in the Apple Watch; is that fair?

9 A. Yes.

10 Q. Let's take a look at RX-0319. And this is a
11 public technical specification for the Apple Watch Series 6.

12 Can you give Her Honor just a few examples of
13 other features and functions in the Series 6 beyond the
14 features developed by your team?

15 A. Yes. There's audio, which can be used to listen
16 to music or make a phone call, speaker microphone. There
17 are motion sensors that can be used to track your motion,
18 steps, your calories burnt through the day. There is a
19 near-field communication sensor that you can use for a
20 point-of-sale display.

21 There's all sorts of wireless connectivity,
22 Bluetooth, Wi-Fi, including cellular networks for network
23 connectivity, and that's one of the particularly challenging
24 module that's in the Apple Watch, because there's a powerful
25 transmitter that needs to talk with cell phone towers that